

CHAPTER 303
STATE BUILDING CODE—REQUIREMENTS FOR
ENERGY CONSERVATION IN CONSTRUCTION

[Prior to 12/21/05, see rules 661—16.800(103A) to 661—16.802(103A)]

661—303.1(103A) Scope and applicability of energy conservation requirements.

303.1(1) Scope. Rules 661—303.1(103A) through 303.3(103A) establish thermal and lighting efficiency standards for the design of new buildings and structures or portions thereof and additions to existing buildings which provide facilities or shelter intended primarily for human occupancy or use by regulating their exterior envelopes and selection of their heating, ventilation, and air-conditioning systems, service water heating, electrical distribution and illuminating systems and equipment for the efficient use of energy.

303.1(2) Applicability. Rules 661—303.1(103A) through 661—303.3(103A) apply to design and construction of buildings which provide facilities or shelter intended primarily for human occupancy or use throughout the state of Iowa. All residential construction is covered, as is all nonresidential construction of public buildings; any building within a jurisdiction which has adopted the state building code, a local building code, or a compilation of requirements for building construction; or any construction of a building or facility with more than 100,000 cubic feet of enclosed space. Rule 661—303.2(103A) establishes standards for design and construction of low-rise residential buildings. Rule 661—303.3(103A) establishes standards for nonresidential and high-rise residential design and construction.

The occupancy of any building covered by this chapter shall be determined based upon the occupancy definitions in chapter 3 of the International Building Code, 2003 edition.

303.1(3) Review by architect or engineer.

a. The plans and specifications for all buildings to be constructed after January 1, 1978, and which exceed a total volume of 100,000 cubic feet of enclosed space that is heated or cooled shall be reviewed by a registered architect or licensed professional engineer for compliance with applicable energy efficiency standards.

b. Statement of review. A statement that a review has been accomplished and that the design is in compliance with the energy efficiency standards shall be signed and sealed by the responsible registered architect or licensed professional engineer. This statement shall be filed with the commissioner on the form furnished by the commissioner, prior to construction or the obtaining of any local permits.

c. Submission fee. Included with the statement shall be a remittance of \$15, made payable to the Treasurer, State of Iowa.

d. Additional buildings. If the plans and specifications relating to energy efficiency for a specific structure have been approved, additional buildings may be constructed from those same plans and specifications without need of further approval if construction begins within five years of the date of approval. Alterations of a structure which has been previously approved shall not require a review because of these changes, provided the basic structure remains unchanged and no additional energy is required for heating, cooling or lighting.

e. Changes to approved plans. No changes shall be made to any approved plan or specifications which either decrease or increase the amount of energy used for heating, cooling, or lighting, unless approved by the responsible registered architect or licensed professional engineer in writing and notice filed with the commissioner.

f. Local plan review. The review of plans and specifications for buildings constructed with a volume of less than 100,000 cubic feet of enclosed space which is heated or cooled shall be in accordance with local or other building code requirements pertaining to plan review, as required by Iowa Code section 103A.19.

661—303.2(103A) Adoption of residential energy code. The Model Energy Code, 1992 edition, chapters 1 through 7 and including all charts, figures, and appendices, as published by the Council of American Building Officials, 5203 Leesburg Pike, Falls Church, Virginia 22041, is adopted by reference as the residential energy code of the state of Iowa building code, applicable to low-rise residential construction throughout the state of Iowa on or after November 16, 1994, with the following amendments:

303.2(1) Add a new subsection 101.3.1.3 as follows:

101.3.1.3 Other exemptions—Exemptions of other buildings or classes of buildings shall be requested from the commissioner in writing. Exemptions shall be granted if the commissioner determines the requirements are unreasonable as they apply to a particular building or class of buildings based upon the data supplied with the written request or additional data if requested by the commissioner.

303.2(2) Add a new subsection 101.3.2.4 as follows:

101.3.2.4 Occupancy—Occupancy of any building covered by this chapter shall be determined based upon the occupancy definitions in chapter 3 of the International Building Code, 2003 edition.

303.2(3) Add a new subsection 102.3 as follows:

102.3 Code compliance. All materials and equipment used to comply with the requirements of this code shall meet the minimum requirements of the Iowa state building code or other applicable building codes.

303.2(4) Add to section 103 the following:

Procedures for obtaining approval of alternate materials and methods of construction are specified in rule 661—302.2(103A).

303.2(5) Delete section 104.1 and replace it with the following:

104.1 General requirements. Nothing in these rules shall be interpreted to exempt or change the requirements of Iowa Code chapters 542B and 544A pertaining to licensed professional engineers and registered architects.

303.2(6) Add an additional subsection to section 104 as follows:

104.3 Retention of plans and specifications. Plans and specifications shall not be filed with the commissioner; however, the person signing the approval statement or the owner shall maintain a copy of the approved plans and specifications for a period of five years following substantial completion of the construction.

303.2(7) Delete subsections under section 105 and insert in lieu thereof the following:

105.1 Inspections. Inspection and review of construction shall be performed in the same manner as the other construction, in accordance with Iowa Code section 103A.19.

303.2(8) Delete the exception to section 402.5 and replace it with the following:

EXCEPTION: Except for a comparison of energy consumption between the alternative design and the standard design, single and multifamily dwellings are exempt.

303.2(9) Add the following subsections and figures to section 502.2.

502.2.1.6 HOME HEATING INDEX. In addition to the requirements of this code for detached one- and two-family dwellings, the calculated Home Heating Index (HHI) of Type A-1 residential buildings shall be no greater than Five Btu per Fahrenheit Degree—Day per square foot.

502.2.1.6.1 The Home Heating Index shall be calculated using the following formula:

$$HHI = \frac{BLC \times 24 \times C}{A_t}$$

BLC = Building Loss Coefficient expressed as Btu/hr. °F.

A_t = Total square foot area of heated space (including heated basements and basements which contain the heating equipment).

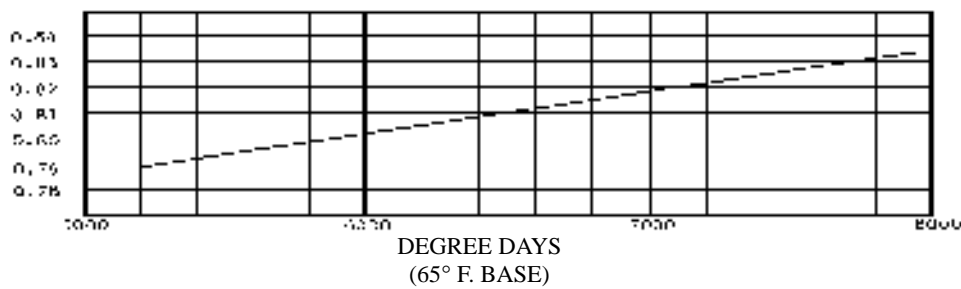
C = Correction factor from Figure 1 (to correct for solar gain and to adjust the maximum heat loss to an average hourly heat loss).

NOTE: The Building Loss Coefficient (BLC) shall include the above-grade walls, below-grade walls, roof/ceiling, floor over unheated space, slabs on grade and infiltration based on ½ air change per hour. These values are obtained by using the standard ASHRAE methods; infiltration heat loss (H_{inf}) shall be computed as follows unless the procedure used includes infiltration in determining the component heat loss.

$H_{inf}(\text{Btu/hr. } ^\circ\text{F}) = (\text{VOLUME OF HEATED SPACE IN CUBIC FEET}) \times 0.009$

Other methods of calculation may be used to verify the HHI such as the Thermal Performance Calculation Method (including solar) as developed by the Iowa State University Energy Extension Service, Manual J, as published by the Air Conditioning Contractors of America, or any other recognized method.

FIGURE 1
CORRECTION FACTOR C



303.2(10) Add the following subsection to section 503.4:

503.4.3.1 Vent dampers. Automatic vent dampers may be added to gas-fired equipment not otherwise equipped under the following conditions:

1. The unit and installation procedure must be approved by the American Gas Association.
2. The installation must be made in accordance with the approved installation procedures.
3. The installation does not affect the operation or the warranty provisions of the equipment to which it is attached.

303.2(11) Add new subsections to section 503.4 as follows:

503.4.8 Oversizing of equipment. System design heating/cooling capacity. The rated capacity of the heating/cooling system at design conditions shall not be greater than 130 percent for heating, 115 percent for cooling at design output load calculated in accordance with section 503.2 whenever appropriate equipment is available. Equipment designed for standby purposes is not included in this capacity limitation requirement. The cooling capacity of heat pumps is exempt from this limitation.

503.4.9 Combustion air. Combustion air shall be supplied as required by the Uniform Mechanical Code, 1994 edition, chapter 6. The Uniform Mechanical Code was published by the Council of American Building Officials, 5203 Leesburg Pike, Falls Church, Virginia 22041.

303.2(12) Add at the end of the first paragraph of section 503.10:

Provisions of the duct requirements of the Uniform Mechanical Code, 1994 edition, shall be used if different from these standards.

303.2(13) Delete section 601.1 and replace it with the following:

601.1 General. The requirements contained in this chapter are applicable only to buildings containing less than 100,000 cubic feet of enclosed heated or cooled space and three stories or less in height. The provisions of this chapter are limited to residential buildings, which have more than two dwelling units, that are heated only or heated and mechanically cooled and to other buildings that are heated only. Buildings constructed in accordance with this chapter are deemed to comply with this code.

One- and two-family dwellings must comply with the Home Heating Index requirements of subrule 303.2(9).

303.2(14) Add to RS-8 in section 701.1:

IES pamphlets EMS-1, EMS-2, and EMS-3 are included as part of this standard.

661—303.3(103A) Adoption of nonresidential energy code. The International Energy Conservation Code, 2004 supplement, published by the International Code Council, 5203 Leesburg Pike, Suite 600, Falls Church, VA 22041, is hereby adopted by reference as the nonresidential energy code of the state building code, applicable to nonresidential or high-rise residential construction within the state of Iowa on or after April 1, 2006, with the following amendments:

Delete chapter 1.

Amend the referenced standards under ASHRAE as follows:

Delete “90.1-2001” and insert in lieu thereof “90.1-2004.”

661—303.4(103A,473) Life cycle cost analysis. Any public agency as defined by Iowa Code section 470.1 shall prepare a life cycle cost analysis for any new construction having 20,000 square feet of usable floor space which is heated or cooled by a mechanical or electrical system or for any renovation where additions or alterations exceed 50 percent of the value of the facility and affect an energy system.

The life cycle cost analysis shall be prepared in compliance with Iowa Code chapter 470 and be submitted to the state building code commissioner before construction commences.

Any public agency which is a state agency as defined in Iowa Code section 7D.34 shall, within 60 days of final selection of a design architect or engineer, notify the commissioner and the department of natural resources of the methodology to be used to perform the life cycle cost analysis. Notice shall be provided on the forms provided by the department of natural resources for this purpose. A life cycle cost analysis prepared by a state agency shall be submitted in sufficient time ahead of the releasing of plans for bids to allow for revisions or additions which may be made to the plans.

661—303.5(103A) Submission fee. Included with the submission of documents for an energy review shall be a remittance of \$15, which may be by money order, check, or warrant made payable to Treasurer, State of Iowa.

These rules are intended to implement Iowa Code chapter 103A.

[Filed 12/2/05, Notice 9/14/05—published 12/21/05, effective 4/1/06]